

## OBSERVATIONAL STUDY

## Students' Perception of the Pediatrics Course in a Saudi Medical School

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### Abstract

#### Objective

In the beginning of 2006 there were major changes to the structure of the pediatrics course that coincided with a sharp increase in the students' number. We aimed to get the students and teachers evaluation of the different activities of the pediatrics course.

#### Methods

Students were asked, at the end of each cycle in 4 consecutive cycles from January 2006 to March 2007, to evaluate various course activities based on what they thought was more useful or effective through filling out a short questionnaire. Teachers filled out a similar questionnaire based on what they thought were more useful to the students.

#### Results

In 4 consecutive courses 247 (65%) students filled the questionnaire. Overall, the students favored tutorial and small group case discussion sessions over lectures ( $P < 0.0001$ ). They also preferred emergency room and ward activities over nursery ( $P = 0.02$ ). Teachers felt that tutorial and small group case discussion sessions were more useful to the students than lectures, though the results were statistically insignificant.

#### Conclusions

Case based activities (discussion sessions and tutorials) and activities providing more patient care responsibility were favored by students at the College of Medicine, King Saud University Riyadh.

**Keywords;** Medical students, Medical education, King Saud University.

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## Introduction

It has been shown through numerous reports that medical knowledge and skills are best learnt within a clinical context and taught in small groups in a safe academic setting that lowers students anxiety and is as close to reality as possible.<sup>1</sup> Less effort is required to learn medical knowledge when exposed to it in the context of a particular patient than struggling through a large text or attempting to stay awake in numerous lectures. This is even truer when we talk about clinical rotations in the final years of medical school training. Realizing this fact, problem based learning (PBL), collaborative learning (CL), or case based learning (CBL) instructional methodologies or a modified version of any of these were adopted by many medical schools worldwide. This mode of education is met with many challenges. Some of these include involvement of many instructors, longer time spent by staff in teaching, and the requirement of more financial resources. In addition, many medical schools, regardless of their educational system, are faced with the problem of increasing number of students enrolled which adds more pressure and time restraints on staff. It is well recognized that effective training of medical students relies on them seeing a good mix of patients with an enthusiastic clinician and enough time for teaching.

The pediatrics course taught at King Saud University, College of Medicine is provided in the final year as one block or rotation. Students used to be divided into 6 sub-groups each subgroup containing 13 to 14 students. It was composed of 36 lectures for the whole group and clinical case discussion sessions to each sub-group. A problem arose by the end of 2005, when we were faced with a 20% increase in the number of students that was not joined by an increment in the available facilities.

Since the beginning of 2006, many interventions were applied to the course in an attempt to improve its structure by exposing students to more clinical situations and encouraging their participation in patients' care. Lectures number was

decreased, tutorials were introduced, and specific allocated time to emergency room (ER), out-patient clinics (OPC), wards, and nursery was set for the students. Moreover, in order to deal with the problem of increased student number, they were asked to spend less time in the hospital than before. This was an attempt not to compromise education quality at the expense of quantity, especially with the planned changes in the curriculum.

## Course Description

The pediatrics course (also referred to as cycle or rotation) is 12 weeks long. The first two weeks are merely composed of 24 lectures. The following 9 weeks are mainly composed of different clinical activities and in the final week, final examinations are delivered (Multiple choice questions and Objective Structured Clinical Examination i.e. OSCE). There are 3 cycles per year; each will have about 100 students. The students, in each cycle, are divided into 4 major groups; each is divided into 3 sub-groups, giving a total of 12 sub-groups with 8-9 students in each. There are 8 tutorials (problem-solving sessions) scheduled one per week in the 9 clinical weeks, except for one week where the mid-cycle exam is given. Each tutorial involves one major group (about 25 students). The 100 students are divided between 2 tertiary care hospitals, a University Hospital and a Ministry of Health hospital. Each sub-group will have two case discussion sessions per week. Because of the large students' number, they spend only one week in the ward where they take care of patients as part of the ward team. In addition they have 6 sessions in the ER, 6 sessions in the OPC and 2 sessions in the nursery. In the ER they make first contact with the patient, do history and physical examination and discuss the case with the staff. In the OPC they join one of the staff and observe the work in the clinic with few interruptions. Finally, in the nursery they learn about normal newborns and simple neonatal problems in non-acute setting. Feedback from students is generally

regarded an effective way to improve teaching. It is also agreed that students can give fair teacher evaluation and reliable lecture rating.<sup>2,3</sup> Post-course evaluation was shown to work as well as immediate post-lecture evaluation for instructors and is easier to perform.<sup>4</sup>

The goal of this study was to have the students' and teachers' evaluation of different pediatrics course activities both instructional methods (lectures, tutorials, and small group case discussion sessions) and clinical practice activities in different settings (ward, ER, OPC, and nursery).

## Materials and Methods

A questionnaire form was distributed to 380 students, 300 males and 80 females at the end of each of 4 consecutive cycles, between January 2006 and March 2007. The form had several items to evaluate including instructional methods (lectures, tutorials, and small group case discussion sessions) and clinical practice activities in different settings (ward, ER, OPC, and nursery). Students were asked to respond to each item using a 5-point scale as follows (1=poor, 2=fair, 3=good, 4=very good, and 5=excellent) based on how much they thought the particular activity is useful or effective. They were asked to specify the hospital in which each of the ER, ward, OPC, or nursery activity was spent.

A similar questionnaire with the same items and scale was also distributed to the teachers who teach both at the University hospital and the Ministry of Health hospital. Their response was based on how much they thought each item was useful to the students.

Data were analyzed by analysis of variance

followed by Duncan multiple range statistical tests. SPSS® was used for data entry and statistical analysis. P value <0.05 was considered significant.

## Results

A total of 247 (65 %) students responded to the questionnaire, 176 males and 71 females. Students preferred small group teaching sessions and tutorials over lectures ( $P<0.0001$ ). There was no significant difference between small group case discussion sessions and tutorials ( $P=0.69$ ) as demonstrated in **Table 1**. They also preferred ER and ward activities over nursery ( $P=0.02$ ). There was no significant difference between ER, ward, and OPC ( $P=0.08$ ) and no significant difference between OPC and nursery ( $P=0.31$ ). However, ER and ward activities appear to be more liked than OPC as shown in **Table 2**.

There was no significant difference in the students' rating of the ER activity between the University hospital and the Ministry of Health hospital. The same was also true for the ward, OPC, or nursery. Twenty-three teachers (82%) responded to the questionnaire. They perceived tutorials and small group case discussion sessions to be more useful to students than lectures, although the difference was not statistically significant ( $P=0.08$ ; **Table 1**). Among clinical activities, the ER was perceived by teachers to be most useful with a statistically significant difference ( $P<0.0001$ ; **Table 2**). On the other hand, there was no significant difference between the ward, OPC, and nursery in teachers' opinion.

**Table 1: Students preference score of instructional methods using a scale from 1-5 (1=poor, 5=excellent)**

	Students			Teachers		
	Mean (SD)	95% C.I.*	P value	Mean (SD)	95% C.I.*	P value
<b>Lectures</b>	2.5 (1.0)	2.4-2.6	<0.0001	3.5 (1.1)	3.0-4.0	0.08
<b>SGCD<sup>§</sup></b>	3.1 (1.2)	2.9-3.3		4.0 (0.8)	3.7-4.3	
<b>Tutorials</b>	3.1 (1.2)	3.0-3.2		3.9 (1.0)	3.5-4.3	

\* C.I. = confidence interval, <sup>§</sup>SGCD= small group case discussion sessions

**Table 2: : Students preference score of clinical activity settings using a scale from 1-5 (1=poor, 5=excellent)**

	Students			Teachers		
	Mean (SD)	95% C.I.*	P value	Mean (SD)	95% C.I.*	P value
Emergency room	2.9 (1.2)	2.7-3.1	0.02	3.9 (1.0)	3.3-4.5	<0.0001
Ward	2.8 (1.2)	2.6-3.0		2.8 (1.1)	2.3-3.3	
Out-patient clinics	2.6 (1.3)	2.4-2.8		2.0 (1.0)	1.4-2.6	
Nursery	2.5 (1.4)	2.3-2.7		2.5 (0.9)	1.9-3.1	

\* C.I. = confidence interval

## Discussion

Previous research, mainly in the West, has consistently shown that medical students prefer problem-based or case-based sessions over lectures.<sup>5</sup> In a recent report from Japan, most students in a dental school enjoyed tutorial sessions when added to a traditional curriculum.<sup>6</sup> This has rejected the common belief by conservative educators there that Japanese students are shy and not suitable taking part in a PBL tutorial, as the authors pointed out. This report supports that change as Saudi medical students too preferred tutorials and small group case discussion sessions over lectures. To the best of my knowledge, no similar study was performed in the Kingdom of Saudi Arabia to compare with. In problem-based tutorials and small group case discussion sessions, students develop good study attitudes and critical thinking. They also learn to integrate skill and knowledge and be interdependent rather than competitive.

The way tutorials and small group case discussion sessions are conducted in the course is that students were handed out the cases (in tutorials) or select and prepare cases (in small group case discussion sessions) in advance of the session time. This method was shown to be preferred over the classical PBL method where students had no idea about the cases before the session.<sup>7</sup> In fact, a very recent report from the University of California showed that most medical students as well as faculty preferred a newly introduced method of instruction called case-based learning (CBL) over the classical PBL.<sup>8</sup> CBL is a more

structured and guided method of instruction where students prepare in advance for the session and they may ask questions to the local experts during the sessions. As mentioned before PBL requires much time, expense, and staff; this method was shown to save time for students and faculty. The more efficient use of time in this method, rather than opposition to open enquiry, was the main reason students preferred it.

The overwhelming preference of case based activities over lectures should not suggest, however, that lectures need to be totally eliminated from the curriculum. Lectures function as an anchor for the students' discussion of issues relevant to clinical problem solving and interventions in small group teaching, while the primary goal of small group teaching sessions may be in consolidating knowledge rather than knowledge acquisition.<sup>5</sup>

Time spent by students in the ER or ward was more preferred while nursery and out-patient clinics were less liked. This is probably because of the more responsibility given to students, and more time for discussion with the staff in the ER and ward. This may also explain why these areas tended to have higher rating by the teachers. In our setting, the OPC is under pressure of service delivery and therefore have limitations for students teaching. Therefore, teachers possibly felt that students are not benefiting much from their time in the OPC and gave it the lowest rating. Students, however, tended to prefer the nursery less than the OPC. This is probably because of the more variety of cases in the OPC that is

related to the subject of general pediatrics. There was no difference in students' rating of these four areas (ER, ward, OPC, and nursery) between the University hospital and the Ministry of Health hospital. This finding emphasizes that utilization of proper non-University hospitals could help in solving the problem of crowded courses like ours. Another method that was found to be helpful in dealing with this challenge of increasing medical students number is the utilization of allied health professionals who can be trained to provide valuable teaching to medical students where feedback may be just as good as it is for the consultant teaching.<sup>1</sup> For example, respiratory therapists can teach medical students about practical points in oxygen therapy and the treatment of children with asthma or other respiratory disorders.

Another challenge that may be faced when introducing changes to traditional teaching methods is overcoming the negative attitudes by some of the staff. It is therefore important to ensure that all contributing teachers are involved in the development process and therefore have ownership of any change.

In conclusion, medical students clearly favored case based activities and those where they had more patient care responsibility. Teachers seemed to be moving in the same direction. These results are encouraging to put more weight on this method of instruction in the curriculum and hopefully convince skeptical teachers to change. Reasonable clinical responsibilities with adequate supervision should be given to medical students in their final years to stimulate them to learn.

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